



The quest of consistent spectroscopic data for atmospheric ozone - an update from experiments and theory

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Ozone spectroscopic data such as absorption cross sections in the visible and UV spectral ranges or line parameters in the IR and MW domains are at the heart of in-situ and remote sensing of atmospheric ozone. However, the fragility of the ozone molecule makes experimental determination of absolute values difficult and desired uncertainties better than 1 % are reached only in exceptional cases. In this paper, we compare new ab-initio calculations in the MW and 5 and 10 μm regions, new absolute and laser based experimental data in the UV and Visible as well as new IR measurements in the 5 and 10 μm spectral regions that are traceable to the UV, with current data base values and recommendations. The new data shows agreement within the 1 % uncertainty limit, but indicates that current recommendations suffer from systematic biases in both, the UV and IR spectral regions, that exceed 1 %.